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Art. I.—PHYSIOLOGY OF VISION.

In the number of the Medical Gazette of London, for May, there is a paper entitled "Contributions to the Physiology of Vision, by D. Griffin, M. D., of Limerick," of which a very brief notice may interest our readers.

The author first explains the beautiful and plausible theory of visible direction given by Sir David Brewster, in which the ray is supposed to be always referred to the direction in which its *mechanical* impression would be made; that is, perpendicular to the retina at the point on which it impinges. Dr. Griffin, using the best established data as to the forms, dimensions, and refracting powers of the different parts of the eye traversed by the light, has traced the course of the rays coming with different degrees of obliquity, and thinks he has demonstrated that a ray entering the eye at an angle of 67½° with the optic axis would strike the retina 90° from the point at which that axis meets it; so as to make the object appear 90° from the axis instead of 67½, and so as to make all objects more than 67½° from the axis appear behind the head. The same difficulty was presented and fully explained in the first edition of Dr. Dunglison's Physiology; and, if there be no mistake in the data and process of reasoning, the conclusion is certainly fatal to Brewster's theory.

In considering this subject Dr. Griffin makes a very just remark, which does not seem to be sufficiently appreciated by those authors who have treated of the eye. It is that nearly all the refraction of the ray takes place on passing from the air into the cornea and aqueous humour. So little difference is there in the refracting powers of the humours *within* the eye, that they can cause but little deviation in the course of the rays passing through them, and their most important functions are probably to correct the aberration of sphericity, and to produce achromatism.

Dr. Griffin calls our attention to a curious and well-known fact as to the intolerance of the eye to strong light, which he states as follows:—

"If we look at a bright sunny road in the height of summer, or at one of those white fleecy clouds called cumuli, the light is so intense, that, besides the pupils being contracted to the utmost, we are obliged to cover a considerable portion of them by half closing the lids. In these circumstances the sensation of intolerance is felt in the eye, and may be thought to have its seat in the retina. If, however, we close one eye entirely, we shall find that the other may be then freely opened without uneasiness, which shows that the real seat of the sensation must be some part of the sensorium itself, and not the retina, which is actually then receiving more light than before. We have here, therefore, a highly intellectual sense—intellectual as regards its anatomical connection with portions of the brain devoted to the process of thought, and intellectual as regards the mental processes which many of its perceptions imply; exhibiting, at least as far as concerns its common sensibility to light, the same law which has been found to prevail in other parts of the nervous system—namely, that when a certain state is induced

at the centre of the nervous mass, the resulting sensation is referred to its extremity. This curious fact may, perhaps, be of some importance in the management of those annoying and intractable forms of ophthalmia, in which intolerance of light is so prominent a symptom."

Dr. Griffin next presents a series of experiments undertaken for the purpose of determining the situation and size of the *punctum cæcum* of the retina. The mode of preparing the experiments is described as follows:—"The back of the head being placed in contact with one wall of the apartment, the distance was measured, as near as possible, from the centre of the eye to the opposite wall. A candle was so placed as to make its image appear in the centre of a convex mirror hung there, which gave the flame of the candle a small and star-like appearance, better adapted to the experiment. The right eye being then fixed first on the image, was directed to the left of it, and at the last point, where I was certain I could see it, a wafer was placed on the wall. Moving the eye still to the left, a wafer was placed again on the wall, at the first point, where I was certain I could *not* see it; going on still to the left, a wafer was placed at the last point, where I was certain I could *not* see it, and again at the first, where I was certain I *could*. Drawing a line now from half the distance between the inner wafers to half the distance between the outer, it is evident that this line might be taken to represent the angular breadth of the insensible spot; and, accordingly, when the right eye was directed to the middle point of this line, the image of the candle was perfectly invisible, from its then falling on the centre of the blind spot. Moving the eye upwards and downwards from the middle of this line, the vertical diameter of the spot was obtained in the same manner. The length of these dtameters being measured, as well as the distance from the centre of the mirror to the point where they crossed, the lengths thus obtained were divided by the distance of the centre of the eye, which gave the tangents of the angle subtended by the blind spot, and of its angular distance from the visual axis." The mean of the recorded experiments gives the distance of the spot from the visual axis 15° 34′, and the height of the centre of the spot above the visual axis 1° 22′.

As to the diameter of the blind spot, the results were found to be materially affected by the circumstances of the experiment. Thus "some of the experiments were made as above described; some by placing a circular paper, seven or eight inches in diameter, on a light-coloured wall, and standing just so near it that the whole would be completely but barely hidden, when the axis of the eye was turned in a proper direction; others, again, were performed by shading the flame of a candle with a cylinder of dark paper, in which a small hole was cut for its light to appear; the experiment, in other respects, being proceeded with as at first described. Lastly, they were done in Dr. Young's manner, with two unshaded candles." The results for the two eyes differed a little; for the right eye they were as follows:—

With paper on light-coloured wall the diameter of the spot was 7° 31′.
With image in mirror, 7° 5′.
With luminous point through the cylinder, 6° 12′.
With unshaded candles, 3° 15′.

From these experiments it appears that the diameter of the spot is diminished as the strength of the light increases; and Dr. Griffin remarks that "this circumstance seems to indicate at once the cause of the blindness, which appears to owe its origin not as Mayo and others suppose, to the presence of the artery in the centre of this spot, but to the thickness of the nervous matter at this part; the optic nerve not having yet spread out into those thin filaments which are exhibited in the structure of the other parts of the retina. This conclusion best explains the facts; for we see, that at some distance from the centre of the optic nerve, its sensibility seems dull to moderate lights, and it is only capable of being roused by very strong lights at the centre itself. Indeed, I found the centre perfectly insensible

to the image of the mirror, when it was brought directly opposite it. The optic nerves, in this respect, resemble other nerves in the body which are not fit for their functions until they have been distributed in thin and fine filaments." P.

Art. II.—CASES OF SLOWNESS OF THE PULSE.[1]

BY HERBERT MAYO, F. R. S.,[2]
Senior Surgeon of the Middlesex Hospital.

In the hope that the narration will not be unacceptable to the scientific body to which I have the honour to present it, I have drawn up the following account of several cases of unusual slowness of the pulse.

I have not included among them instances of failure of the pulse *occurring towards the approach of death*, when, under complicated disease, or the operation of some strongly prostrative force, the heart's action flags, the organs of animal life continuing in more or less undisturbed possession of their functions.

It is thus that in Asiatic cholera consciousness persists some hours after the arterial pulse has been extinguished: and that, in many other cases of mortal disease, the powers of the mind remain for days and weeks, the heart beating at half, or a third only, of its normal frequency. The most remarkable instance of *this* kind on record, is given in the 17th vol. of Duncan's Med. Comm.—"A person at the age of 54 was one day suddenly taken with a transient fit, in which he lost his senses; this was followed by three other similar fits, after which he lived between two and three days." The following is the account of his condition the day before his decease:—"He had been very faint almost the whole night, and had been attacked with frequent fits, attended with convulsions, and every thing he attempted to take seemed to have the effect of inducing a fit. He now felt, at their commencement, a violent pain which darted through his head, but when free from the fit, he was perfectly recollected and distinct. When I numbered his pulse," continues Dr. Spers, "I found that it beat only 10 strokes in the minute, though it still continued equally strong and regular as before. I ordered him to take a glassful of whisky, after which he remained for an hour pretty quiet and easy, and his pulse rose again to 24 strokes in a minute. But at three in the afternoon, I found that his pulse was only 9 in the minute, and it was neither so strong nor so regular as before. He was now in great distress from constant sickness and faintness, but perfectly sensible and collected. At seven in the evening, I found his pulse still 9 in the minute, but much weaker. He continued sensible but was unable to speak. He was not, however, affected with any more returns of convulsions, but was observed not to move his right hand or left leg afterwards. He expired at nine the following morning."

"Upon examining the head, two ounces of a watery fluid were found in the ventricles of the brain, and a gelatinous appearance was observable on some parts of the pia mater."

Passing by the consideration of instances of the foregoing class, I propose in this communication to exemplify two kinds of slowness of the pulse, *which are compatible either with ordinary length of days, or, at all events, with the continuance of life for an indefinite period.* The instances which I shall narrate, with two exceptions, either have been witnessed by myself, or have been given to me by medical practitioners who witnessed them. They are of two kinds. In one, the rate of the pulse is known to have been

[1] London Medical Gazette, May 5, 1838, p. 232.
[2] Read before the Royal College of Physicians, April 2d.

always the same, or was not known at any former period of life to have been different. In the second, the pulse has been originally of the average frequency, and has dropped to a slower rate through the influence of causes that, for the most part, were determinable.

I. The first case which I shall narrate exhibits a remarkable slowness of the pulse, which, it may be presumed, has existed (with allowance for years) from birth, as a constitutional peculiarity. Mr. Lennard, of Craven street, who had attended the patient, introduced me to him, and gave me the opportunity of verifying the following particulars, which the subject of them gave me permission to communicate:—

Mr. T. H. is 35 years of age, 5 feet 6 inches in height, thin, and of a slender frame, his complexion delicate, with a colour. About fourteen years ago he became aware that his pulse was slower than that of other persons: he was in perfect health. Four years ago Mr. Lennard first counted his pulse; he found it to be about 40. On the 16th of March, in the present year, on counting it twice, after he had walked to Mr. Lennard's to meet me, I found the pulse 38½. It is regular, full, and strong. The action of the heart, as heard by the stethoscope, is perfectly healthy. Mr. Lennard attended this gentleman on one occasion for headache, with great depression of spirits; the pulse during this indisposition rose to 52. Mr. H. is now in perfect health; has a good appetite and good digestion; sleeps soundly, and equally well on either side, but by preference on his back; he sleeps from six to eight hours; he takes considerable exercise, and supposes himself to be as capable of bodily exertion as other persons of the same slight frame as his own. His father and mother died of consumption, the former at the age of 40, the latter about the age of 35.

II. The next case which I shall narrate was communicated to me by Mr. Hewlett, of Harrow. It is that of a clergyman, who died at the age of 32, after a few days' illness, of obstruction of the bowels caused by narrowing of the colon. "Till this fatal illness, the Rev. Mr. B. had enjoyed excellent health; he was exceedingly active in mind and body; few people excelled him in conversational talents; and he would run, and frequently did, and skip about like a schoolboy. I have known him," continues Mr. Hewlett, "I have known him in the playfulness of his temper, declare he could *jump* further than I could, nor did our hills embarrass his breathing in the slightest degree." He frequently, however, like most other excitable persons, had fits of languor and depression. His pulse was regular at 36; his only bodily ailment was a disposition to torpor of the bowels and dyspepsia. Aloetic aperients, with bark and ammonia, resorted to on such occasions, would greatly benefit him, and his pulse would sometimes rise to 42 or 44 when he was pursuing such a course of medicine. He had experienced one attack of fever, when the pulse at the onset was so high and forcible as to lead Mr. Hewlett to bleed him.

When the body was examined, commencing ossification of the aortic valves was found.

III. The particulars of the third case which I shall mention were given to me by Mr. Arnott, in the words in which he had received them from the medical attendant of the party.

"About ten years ago, he, being then 67, first marked the slowness of his pulse, since which time it has never been above 36 strokes in a minute. In general it beats 28 or 29; when I last saw him," says Mr. Arnott's correspondent, "a few days ago, it beat 29. When it beats 36 he feels very unwell, having thirst, and other symptoms of fever. He has remarked his pulse as low as 25. He has had no complaint since it became low, except that about six years ago he had jaundice. I did not see him at that time; he consulted Dr. Abercrombie, who was much struck with the slowness of pulse, but he does not remember whether during the course of the disease his pulse varied much. It never intermits, or becomes irregular. His intellect is clear; and he enjoys very good health for his age. As a landed

proprietor, he is accustomed to superintend his farming operations, and rides occasionally eight miles to market."

The next case was communicated to me by Mr. Jones, of the Strand, in the following statement:—

IV. "Mr. ——— has been known to my father for forty years; but until five years ago he had such excellent health as to require no medical attendance. At that time I was sent for by him, and found him suffering with oppression of the chest, swelled legs, and a sensation of fluttering in the head. He told me that he had for many years believed that he was of too full a habit, and had therefore restricted his diet to a very small allowance, never touching either beer, wine, or spirits. His age was 70. His pulse very regular at 38 to 40, never intermittent. His symptoms were relieved by antispasmodics, opiates, and aperients; and afterwards being put upon a generous diet, in about four months he got perfectly well. As his strength returned, his pulse got down to 28, and was very regular. He remained well for two years, when the sudden death of one of his servants so affected him, that he suddenly lost the recollection of the names of persons, places, and things (for instance, he would call a house an apple); still he retained his reason perfectly, and well knew what others were talking of, and would discover in a moment if they spoke incorrectly, and would recollect the names of things when set right by a friend, though in two minutes he would forget them again. In this latter respect he has gradually got better, and can now converse freely upon any subject, though he finds it very difficult to write correctly. But his former symptoms have never returned. A few weeks since he had a severe cold, disordered bowels, cough, and slight fever; and on one day his pulse was as high as 55; but as he recovered, it gradually subsided to the original standard of 28, where it now remains."

In the cases which have been narrated, the rate of the heart's action appears either to have been originally, or at some unobserved period to have become, permanently different from the average rate. In these cases there is a strict analogy to those in which the circulation of the blood is normal. Acceleration of the pulse in both is a sign of disordered health; although, in the cases which have been recently considered, the acceleration has been an approach to the average frequency of health. A like phenomenon is observed in cases in which the action of the heart is naturally irregular. In these, of which I have witnessed one instance, the heart's action only becomes regular when some febrile disturbance is present.

In the second class of cases which I propose to exemplify, the acceleration of the pulse is, on the contrary, always attended with improvement of the health and bodily feelings. It differs again, as it has been premised, essentially from the preceding kind of acceleration, in that it may be traced to the operation of more or less obvious causes, which have interfered to depress the circulation. The surprising part of such cases is, the degree and permanency of the depression of the circulation, without material impairment of the general well-being of the patient; yet even this is rendered less surprising through the consideration of the classes of cases before adverted to.

The cases which fall under the present head result from either of several causes:—the heart beats slowly either in consequence of disease or lesion of the brain—or of general depression, exhaustion, and reduction of strength—or from sympathy with the digestive organs, or from ossification of the coronary vessels, and atrophy, with or without passive dilatation.

I shall not offer examples of the first kind, of lowered frequency of the pulse attributable to cerebral lesion or disease. In its two varieties, when the effects of the lesion wear off, and the pulse resumes its former rate, or when those effects are aggravated, and death ensues, this pathological phenomenon is necessarily familiar to the present audience; to whom, in the latter alternative, it was strikingly presented by Sir Henry Halford in his account of the last illness of the late Earl of Liverpool. But I shall pro-

ceed to narrate, without any further comment, (*as the physiological and practical deductions from them are obvious,*) instances, which, while they exemplify the force of the influences to which I have attributed them, at the same time present other features that may not be uninteresting.

V. The first case, which I shall bring forward, is that of a young lady, mentioned by Mr. John Scott, who, when under the care of Mr. Pennington, for neuralgia of the face and throat, was recommended by Mr. Pennington to abstain entirely from taking food by the mouth. Nutritive enemata were administered twice or thrice a day, composed of beef-tea, with an egg dissolved in it, for which veal, broth, and milk, were afterwards occasionally substituted. At this time the secretions were much disordered; there had been no appearance of the catamenia for nine months; the pulse was frequent, quick, and irregular. After pursuing the plan just named for four days, very considerable excitement was produced, attended with some degree of fever, quick pulse, and flushed cheeks, &c.; but it shortly subsided, the pulse becoming less frequent, and the fever disappearing. At the end of a fortnight, bilious secretions were observed, and in a month the catamenia reappeared; the pulse was between 70 and 80, and not deficient in strength. *After the lapse of five weeks and three days without any nourishment being introduced by the mouth, the pulse suddenly sank to* 35 *in a minute*, and it was then deemed advisable to give by the mouth a dessert-spoonful of beef-tea twice a day; and this being continued for four days without inducing any return of the spasms, a small piece of fish was then allowed, and then some chicken; and, proceeding thus cautiously, in the course of a month she was able to eat and drink any thing without the slightest inconvenience.

VI. The next case which I have to mention, exemplifying the same principle, is that of a surgeon with whom I have the pleasure of being acquainted; but the narration of whose case I communicate in his own words, as sent by him to Dr. Hope, and by Dr. Hope conveyed to me.

"My dear sir,—In reply to your note relative to the pulse affair, it occurred many years ago, while I was a pupil of Mr. Abernethy.

"I had sat up six successive nights with a lady, whose life was very valuable, and who required constant watching, without sleep in the day. The seventh night I had the leisure, but not the power, to sleep, or rather not the inclination. This was followed by an attack of fever, which lasted some ten days, and for which I was treated by Dr. A., doubtless *secundum artem*. Mr. Abernethy saw me daily. At my urgent request, he ordered me—calomel gr. iv., jalapæ gr. v. 3tiis horis, to purge me, and remove, as I fancied, some obstacle to my more rapid recovery. The physic did its work, and almost liquified my solids. My pulse fell, as I have told you. The doctors were, as I believe, really alarmed, but I was not. My pulse remained as low as *about* 30, I think for a day or two; it then rose to 40, and remained there for many days. Notwithstanding nourishing food and constipation, judiciously ordered by Dr. Ashburner, many years elapsed before it rose to 70."

VII. The next two cases involve more complicated elements. A gentleman, aged 52, of a full habit, easily excited, accustomed to live freely, and to take much exercise, having had one or two transient giddinesses or sensations as of *losing* himself, after a day's shooting on the 1st of October, 1835, on going down into his cellar had a stronger and more threatening return of the sensations; but he recovered himself without falling. Dr. Ferguson, whom he consulted, prescribed reduction of diet and aperient medicine. The same sensations, however, returned. His diet was then still further lowered; and in the course of a year he lost, by this means and by purging, four stone in weight. He now had a long interval of improved health. But towards the close of the next summer, the lowering plan being continued, the occasional faintnesses reappeared. His pulse had become weak; but it was between 70 and 80 in frequency. He was now seen by

Dr. Watson and myself in consultation with Dr. Ferguson, and it was agreed that a more liberal diet, with two glasses of wine at dinner, should be allowed him. He improved considerably upon this change being adopted; when, being in the country, he had an attack of sore throat, with great debility, for which the surgeon who attended him found it necessary to increase his allowance of wine. He returned to town, took less wine again, and was again engaged in very harassing business; at this time his pulse was first observed to sink. On the 1st of December, 1836, his pulse was 39; he was again seen in consultation, by Dr. Watson and myself, with Dr. Ferguson. On listening to his heart nothing now was heard but a blowing sound at the time of the systole of the ventricle; no second sound was perceptible. But he had no symptoms of deranged circulation, except some shortness of breathing after walking up hill, or going hastily up stairs. It was agreed to increase the quantity of nutriment and stimulus which had been allowed him. He still, however, continued involved in very anxious mercantile business; his pulse gradually dropped to 34 and 30. On the 23d of January, having taken a saline aperient draught, prescribed by a lawyer, he fell, when at the water-closet, in an apoplectic fit. I saw him in this state with Dr. Ferguson; his pulse was weak, and had fallen to 27: as soon as he could swallow, hot brandy and water was given to him; his pulse rose two or three beats, and he gradually rallied. Towards evening he had completely recovered his faculties. He was considered now in very imminent danger, coupling together the presumed valvular disease of the heart, the epileptic seizure, and the slowness of the pulse. But from that time, (with some considerable interruptions, when he has temporarily fallen back,) he may be said to have exhibited a slow but progressive amendment in health, notwithstanding much occupation in business, which circumstances have rendered unavoidable. The plan of regimen since followed has been the use of moderate but nutritious diet, with a pint of wine daily. He has had no return of epilepsy; but when he has been threatened, which has once or twice happened, with giddiness, a dose of brandy and hot water has restored his circulation and strength. During the cold spring of 1837, his pulse, while his general self-feeling was improving, fell in frequency to 28, 26, 24: on one day, on which he had imprudently exposed himself to a chill, I found that his pulse had fallen to 21; but he was not aware, from any inward sensation, that it had sunk so low, and he walked and talked as usual, and as if in perfect health. His pulse for the last three months has been from 29 to 32. The only additional circumstances to be mentioned are, that the blowing sound at the ventricular systole remains as before, *neither increased nor diminished*, but the second sound is now, and early indeed became, distinct and clear; and that there was a short interval before the revival of the second sound, when two imperfect actions of the ventricle could be heard between the stronger ones, which alone were attended with a pulse at the wrist.

The next case which I propose to mention, is that of a medical gentleman, who has now attained the age of 62, and, in a long career of successful practice, has become known to many of those who are now present.

VIII. Up to the age of 59 he had enjoyed, *with two interruptions*, good health. He had great activity of mind and body, well fitted for the latter by a light and spare frame; his height is five feet nine; and his complexion is still ruddy and healthy. The only ailments he had been subject to were pains in the bowels, which he attributed to flatulence; his pulse was regular, and 72. His two illnesses had been, one, severe headaches, which supervened upon domestic distress: the second was the influenza, in the spring of 1834; for which, as it was attended with fever and much pain in the head, he insisted on being bled; he was bled at once to twenty-five ounces, and he afterwards lost twenty-five to thirty ounces more. This injudicious self-management was followed by temporary extreme weakness of body and of mind, and such impairment of vision, that he was nearly blind. In a

few weeks, however, he appeared to have completely recovered, and continued quite well for more than a year. One night in September, 1835, he went to bed in perfect health, and slept well; when, having risen, on walking to his dressing-table, he had a sensation in the chest as if something turned over. On feeling his pulse, he found it beat 30 or 32 only. He took stimulants and other remedies with no effect; when, on the third evening, he became sick, vomited, and threw a considerable quantity off his stomach, when his uneasy sensations *at once went off*, and his pulse reverted to healthy frequency. He remained after this perfectly well till April 1836, when, *again, on rising in the morning*, uneasiness of the chest, and a sudden slowness of the pulse, supervened. This remained between three and four weeks in the same state, and was totally unrelieved and unaffected by every plan that he tried. On a sudden, in the afternoon, he felt that he was well, and the pulse beat 68. He continued well till April of 1837, when he was again attacked; but this time in the evening, and after fatigue. Since then the pulse has never returned to its proper frequency. When I felt it a few days ago, it was 33. It has been as low as 22.

The most remarkable feature in this case is one already mentioned—*the suddenness of the invasion, and of the disparition of the symptoms on two occasions.* But there are others of great singularity. Sometimes the heart has neither been heard nor felt; and on one occasion its beating was discernible, and alone discernible, on the right side. Again, the uneasiness of the chest is a sense of general constriction across the front of the chest; but it is unattended with any sensations in the scapulæ, or in the left arm, while pain is felt in the insertion of the right deltoid, or rather in the course of the long tendon of the biceps; and that pain may be brought on by either raising or carrying backwards the right arm. The lungs are perfectly healthy. On two occasions the ankles have become swollen; they are not so at present.

It has been mentioned that, in this case, stimulants have always failed in restoring the action of the heart. One rule alone seems capable of contributing to this patient's comfort. This is, to observe the greatest caution and gentleness in motion; stooping, raising the right arm, and hurried exertion, suddenness in rising or laying down, produce pain and constriction of the chest, and pain of the right shoulder. Avoiding these, this gentleman appears in perfect health; his complexion is ruddy and healthy; his appetite and digestion are good; and to the ear his heart acts healthily with no murmur or peculiarity, except that perhaps it beats over a somewhat larger surface than is natural.

It may not be uninteresting to mention, that in the two last cases narrated, the breathing is gentle, and of the common frequency. It is the same in the case shown to me by Mr. Lennard. So the ratio which has been held to exist between the frequency of breathing and of the ventricular systole, is contingent on other circumstances, in one extreme. So, likewise, in the other. On the 21st of March I amputated the leg of a patient above the knee for albuminous sarcoma of the fibula. The leg was becoming swollen, in consequence of the tumour having been proved two days before, and was intensely painful. The pulse was 140, but the breathing was gentle and not hurried. The pulse sank to 120 by the night, and has gradually dropped to 96. (I may mention that the patient has done well.)

I will conclude with the notice of a case still more extraordinary than those which have gone before, in reference to the immediate object of the present paper. The outline of this case, indeed, is very brief, and leaves some points untouched, on which it would have been desirable to have had fuller information; but of its correctness no doubt will be entertained, when I mention that, although given from recollection only, it was communicated to me by Sir Astley Cooper.

About twenty years ago, a person towards forty years of age was an outpatient of Guy's Hospital, under the care of Dr. Cholmondely and Mr.

Stocker; there was some embarrassment in his breathing, and he was supposed to have water on the pericardium, for which he was treated. His pulse was usually 29 in a minute; but on one day that it was felt, in his visit to the hospital, it was found to be below fourteen in a minute: it beat 27 times only in two minutes. In three months this patient entirely recovered; the oppression at the chest disappeared, and the pulse returned to the natural standard.

Art. III.—CASE OF POISONING BY THE CICUTA MACULATA.

BY S. A. COOK, M. D.

Buskirk's Bridge, June 14th, 1838.

The following case, though fatal in its termination, strikingly illustrates the effects, on the human system, of one of our most virulent indigenous plants. How far the remedies suspended the primary impression of the poison, is left to the judgment of the reader.

It is to be regretted that a post-mortem examination could not have been obtained, as cases of this kind, though occurring not unfrequently, are mostly confined to the country, where pathological investigation must, from causes yet beyond the control of the profession, be extremely limited.

Case. May 8, 1838.—Moses Graham, aged about sixteen years, 11 o'clock, A. M., ate of the root of the water hemlock (cicuta maculata), mistaking it for the meadow parsnip (zizia aurea), and about an hour afterwards ate dinner, as usual; soon after which he was taken with vomiting, and in a few moments fell down in convulsions. Dr. Warner saw him about 1 o'clock, P. M.,—gave him two teaspoonfuls of tinct. opii;[1] bled him to the amount of ten or twelve ounces; and attempted to produce emesis with sulphas zinci without success. At 2½ o'clock, P. M., I first saw him, when he presented the following symptoms:—Countenance livid and bloated; a bloody froth pouring from the mouth and nostrils; a rhonchus more or less distinct through the greater part of the chest, peculiarly loud in the larynx, trachea, and larger bronchial tubes; skin purple, cold, and moist; pulse about 140, weak, and small; respiration hurried and deep—the muscles engaged in the performance of this function, both on the face and chest, acting spasmodically; eye lustreless and fixed; pupil uninfluenced by light; heart and carotids acting violently; epileptic convulsions every ten minutes; incapable of deglutition. After attempting in vain to get down more of the sulph. zinci, with the hope of producing emesis, we resorted to the following enema, with a view to obtain both its exciting and revulsive influence,—Brandy ℥viii. tinct. cap. am. ℥i. It immediately produced considerable uneasiness, and was followed by diminished frequency and increased strength of pulse. In half an hour sensibility was so far restored as to enable him to swallow liquids. Respiration now became sighing; and instead of lying insensible he became restless, rolled from side to side of his bed; at the same time whenever an attempt was made to change his position by the assistants, he resisted with a rigidity of muscle that appeared spasmodic.

Five o'clock, P. M., Dr. Gray arrived. He recommended to endeavour to produce emesis by tickling the fauces. It produced retching, and evacuated a small quantity of liquid from the stomach, probably the brandy which he had taken within the last two hours. He now began to resist our efforts to get stimulants down. The pulse was improving in strength, though he was almost constantly groaning.

Twelve o'clock, midnight. Symptoms generally declining. Took two

[1] This was given in divided doses.

ounces of ol. ricin. Continued brandy, alternating with carb. ammon. A sinapism that was applied to the stomach at the time of giving the enema was found to have vesicated.

9th. Six o'clock, A. M. Has been roused so as to recognise those about him. Laxative about operating.

Ten o'clock, P. M. Improving. Pulse 94, soft and full; respiration deep and wheezing; bowels have moved freely during the day.

14th. Called again to M. D. Was about the house yesterday and day before. Was taken this morning with faintness or a sense of sinking. Respiration deep, rattling; pulse very frequent, indistinct; countenance bloated; lips and hands livid. Evidently sinking rapidly. Died about 3 o'clock, P. M.

The cicuta maculata appears to possess extremely active properties. The quantity eaten in this case could not be accurately ascertained; the man who was with him thinks he swallowed but what he bit off at one time. The identical branch of the root from which he ate was obtained. It was pared, and there had exuded from its surface a thick, tenacious, oily substance of a yellowish brown colour and a pungent odour. The plant is said to grow in abundance in this vicinity, chiefly on low ground near streams. It is of a different genus from the conium maculatum, with which it has *been frequently confounded by therapeutists.*[1]

Art. IV.—PHILADELPHIA HOSPITAL (BLOCKLEY).

CLINIQUE OF DR. DUNGLISON.

1.—*Summary of Cases treated in the Women's Lunatic Asylum, from April 16th, 1838, to June 12th, 1838.* Reported by Edwin A. Anderson, M. D., of Wilmington, N. C., Senior Resident Physician in charge of the Asylum.

DISEASE.	CAUSE OF DISEASE.	No.	Cured.	Relieved.	Discharged.	Died.	Remaining.
Insanity (periodical)	Vicarious menstruation.*	1					1
" (with epilepsy)	Epilepsy.	1		1			1
" (puerperal)	Connected with abortion and flooding.	1					1
" (partial—monomania)	Religious melancholy.	2			1		1
" (of long standing)	Connected with amenorrhœa.	1					1
" do. do.	Unknown.	5		1	1		4
" (violent and recent)	"	3					3
Hypochondriasis	"	1					1
Epilepsy	Connected with amenorrhœa.	1		1	1		
Mania à potu (1st stage)		4	4		4		
" (2d stage)		7	5		5		2
" (3d stage)		13	13		13		
Suicide.	℥ iv. of tincture of opium taken twelve hours before entering the asylum.	1				1†	
Total.		41	22	3	25	1	15

[1] Eberle, vol. ii., p. 48, 2d edition. Paris, vol. ii., p. 115, 2d American edition. Chapman, vol. ii., p. 195, 5th edition. Dunglison's General Therapeutics, p. 458.

* The report of this case will be given in our next number.—*Ed.*

† One hour after admission.

REMARKS BY DR. ANDERSON.

It will be perceived by the above summary that three degrees are made in those diseases that are caused immediately by intemperance. The first includes the cases where the patient is brought into the hospital presenting no other symptoms than stupor, somnolency, and unconsciousness of surrounding objects; pulse full and bounding; tremors not observable. These symptoms often wear off after one night's rest, and the patient awakes with only a slight sense of lassitude remaining. Not unfrequently, however, they run into the second stage, where the symptoms become aggravated—the previous excitement has worn off—the pulse become small and frequent, and on extending the flexed fingers constant tremors are noticed, with quivering of the tongue when the patient is ordered to protrude it from the mouth, which is uncontrollable by the strongest efforts.

As yet we have none of the genuine symptoms of well-marked mania à potu, which consist in great restlessness; jactitation; insomnia; pupils contracted to a mere point; pulse very feeble, small, often as high as 140 and 160 in a minute; cold, clammy, and slippery sweats; constant tremors; mind confused and wandering, filled with a thousand strange and wild fancies,—at one time imagining that the walls of the room are about to fall in and crush them—at another, that wild animals, fiends, and serpents are about to devour them, that the bell is tolling the hour for their execution, or that some great drama is about to be performed, in which they bear the principal character. The mind of the patient attacked with mania à potu, unlike other cases of insanity, concentrates all things on himself, as chief personage in the scene.

I have had opportunities of observing the transition of one of these affections into the other not unfrequently;—the patient at one visit labouring under simple intoxication, or the first stage; at the next the second stage has become developed, and finally the third stage, or confirmed mania à potu. The stages may all appear distinct, or the first may run into the second and there become arrested, or from the second it may pass into the third; until recovery or death closes the scene. I have also witnessed, in numerous cases, the power of medication in preventing the first stage from running into the second; and the latter from passing into the third.

From an observation of near one hundred and twenty cases, since I have been resident physician to this hospital, it appears to me that these stages or distinctions are well marked; the two first being comparatively of easy management, whilst the third is not unfrequently fatal. Hence we can readily understand the success of those physicians, who (not admitting these distinctions) boast, that they can cure the *very worst* cases of mania à potu with rest in a dark cell and *strong coffee alone.* On the contrary, I am convinced, not by *theory* but by experience and observation, that the worst cases of mania à potu cannot, as a general rule, (to use the language of my distinguished friend and late preceptor, Professor William Tully, of Yale College,) be treated successfully *without alcohol in some shape or other.* Eight ounces of brandy has, like a charm, calmed in a moment all the distressing symptoms of mania à potu; the patient has fallen into a tranquil sleep, which he had not done for days before, and, on the following morning, has awoke apparently free from danger. In one case an ounce of brandy was administered every hour for eight successive hours, with half an ounce of the following mixture every half hour:—R. Spiritus ætheris sulphurici compositi ℥ iss.; ammoniæ carbonatis ℥ i.; pulv. sacchari albi q. s.; mucilag. gummi acaciæ q. s. ut ft. ℥ vi.; sumat cochleare magnum quâque semihorâ. Entire relief of all the symptoms succeeded. The pulse became full; warmth of the surface returned, with ability to speak and move. In a word, the stimulant and narcotic plan is the one which, with us, has proved eminently successful.

E. A. Anderson, M. D.

2.—*Case of Chorea.* Reported by ALEXANDER M. VEDDER, A. M., of New York, Senior Resident Physician.

David Porter, æt. 25 years, was admitted on the 14th May, 1838. Is a native of New York; has lived in Philadelphia for the last three years; a labourer; temperate, and unmarried. Has never had an attack similar to the present. Has always, indeed, enjoyed good health. In June 1837, was taken with involuntary movements of lower extremities, at first somewhat jerking; these gradually became more frequent. Was in danger of falling if he attempted to walk, and did fall frequently. After continuing three months in his lower extremities, the disease attacked his arms, trunk, and head. Was constantly in motion, but more some times than at others; could not sit up; had not sufficient command of his arms to direct food to his mouth, so that he had to be fed. His tongue was also subject to the involuntary motion—preventing him speaking at times, or causing his sentences to be interrupted; muscles of face in constant action—drawing his mouth open and protruding his tongue, which he had bitten several times. Could always swallow well; appetite good; bowels always regular; no cephalalgia nor pain in the limbs, with the exception of soreness from the constant movements. Can assign no cause for the disease. He continued in this state until his entrance into the Philadelphia Hospital.

During sleep the muscles were not quiet. At his entrance he was obliged to be fed, and to be put in and out of bed. One week afterwards he became somewhat worse, and fell out of bed. He was conscious but unable to prevent it.

On his admission he was cupped on the back of the neck and spine, and a blister was applied, and cathartics were prescribed. On the 17th of May, Dr. Wendel, the resident physician in charge of the ward, prescribed the following combination:—R. Pulv. aloes, gr. iii.; pulv. assafœt. gr. ix.; pulv. zinzib. gr. vi.; ferri carb. præcip. ℥i.; M. et fiat pulvis ter die sumendus. This was continued, with dry cupping occasionally to the spine, until the 9th of June. Under this treatment he improved greatly, so that he could walk and take his food, and had only occasional jerkings of different parts of his body. He afterwards, however, became worse—as bad, indeed, as at any time previously.

On the 9th of June, Professor Dunglison directed the chalybeate to be varied, and a cold *douche* to be applied every day.

The ferri sulphas, in the quantity of twelve grains, was accordingly substituted for the dram of the ferri carbonas.

The impression made upon him by the cold douche was so disagreeable that he refused to submit to it. The treatment was, however, made compulsory, and under it he soon began to improve; and in one week after the application of the remedies the spasms entirely ceased.

June 21st, 1838. The patient is a large, muscular, stout man; his intelligence seems natural. Has now no convulsive motion whatever; bowels regular; appetite good; no cephalalgia. Does not walk well; seems to drag his legs somewhat, his knees bending under him at times: it is proper to remark, however, that he had lost his toes on both feet by frost.

Discharged June 21st, 1838.

A. M. VEDDER.

BIBLIOGRAPHICAL NOTICES.

Guy's Hospital Reports, for April, 1838.[1]

The present number of this periodical is not less interesting than its predecessors. The contributors—several of whom are of the highest distinction—do not appear to relax in their exertions, and the various communications which require graphic illustrations are supplied in a manner that demands commendation. The papers in this number are as follows:—1. On Spermatocele, or Varicocele of the Spermatic Cord, by Sir A. Cooper. 2. On Paraplegia depending on the Ligaments of the Spine, by Mr. Key. 3. Researches into the Chemical Nature of Mucous and Purulent Secretions, by Golding Bird, F. L. S. 4. On the Action of Water on Lead, by A. S. Taylor. 5. On the Effect produced upon the Pulse by a Change of Posture, by W. A. Guy. 6. An Experimental Enquiry respecting the Process of Separation after Simple Fracture of Bones, by Mr. B. Cooper. 7. On Hemorrhage from the Unimpregnated Uterus, by Dr. Ashwell. 8. Summary of Cases in the Obstetric Ward, &c., by Dr. Ashwell. 9. History of a case of Dislocation of the Femur, by Sir A. Cooper. 10. Account of a very large Calculus passed by a Young Woman, without Operation, communicated by Sir A. Cooper. 11. Occurrence of White Patches on the Surface of the Heart, and on the indications they afford of Attrition and Distension, by T. W. King. 12. On Morbid Flattening or Compression of the left Bronchus, produced by Dilatation of the Left Auricle, by T. W. King. 13. Observations on Abdominal Tumours and Intumescence, illustrated by cases of Ovarian Disease, by Dr. Bright. And lastly, Analysis of Fluids contained in Ovarian Cysts, by Dr. Geo. O. Rees.

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Velpeau's Midwifery by Meigs.[2]

The success which has attended the work of Velpeau—both at home and abroad—is sufficient evidence of its merits. It is, indeed, one of the most learned works on obstetrics which we possess,—not treating the subject merely as an art, but in all its physiological as well as practical bearings. We are gratified to find that it has been so highly appreciated in this country, that a second edition of the translation is demanded. The profession are greatly indebted to Dr. Meigs for the excellent version which he has afforded them of so valuable a work.

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Prof. Horner's Necrological Notice of Dr. Physick.

We refer to this necrological notice, published in a recent number of Bell's Select Medical Library (June, 1838), for the purpose of supplying an inadvertent omission in Professor Horner's enumeration of the "local

[1] Guy's Hospital Reports, No. VI., April, 1838. Edited by Geo. H. Barlow, M. A. L. M., Trin. Col. Camb. &c. &c. 8vo, pp. 286. Ten plates. London, 1838.

[2] An Elementary Treatise on Midwifery; or Principles of Tokology and Embryology. By Alf. A. L. M. Velpeau, M. D., &c. &c. Translated from the French, with notes, by Charles D. Meigs, M. D., Member of the American Philosophical Society, Lecturer on Midwifery and the Diseases of Women and Children, &c. Second American edition. 8vo, pp. 592. Philadelphia, 1838.

testimonies" of respect paid to the memory of one whom all were delighted to honour. No mention is made of the resolutions of the Faculty of Jefferson Medical College expressive of their sense of the loss which the profession and the community had experienced in the death of the illustrious individual;—or of the fact, that their lectures were suspended on the day of his funeral,—events which were published in the daily journals at the time, but which have escaped Prof. Horner's notice or his recollection.

Aitkin's Physiology.[1]

The author's main object in producing this neat volume appears to have been,—to furnish the general reader with a summary of the most important facts and reflections, connected with the functions of the human body; and we have been not a little gratified to find that he has made the "Human Physiology" of the editor of this periodical the basis of many of his observations,—in the latter part of the volume more especially.

As an evidence of the volume being intended for the non-professional, the reproductive functions have been wholly omitted.

We notice various errors, in the orthography of proper names more especially.

Mr. Bird on the Chemical Nature of Mucous and Purulent Secretions.—From some recent researches on this subject, by Mr. Golding Bird, F. L. S.,[2] we extract the following chemical and physiological deductions:—

If the facts advanced in the two preceding sections are proved, by subsequent observers, to be universally correct, we cannot but admit their importance, even if they only serve to point out the analogy between mucous and serous surfaces, as evinced in their secretions. And if, as has been shown, *albumen* can readily, under certain circumstances, become converted into mucus, so we no longer have any difficulty in understanding how mucous and membranous surfaces may, under certain states of irritation, pour out albumen in a free or coagulated state. Thus, if the lining membrane of the larynx and trachea—which presents, normally, a surface secreting genuine mucus—be considered as pouring out the albuminous particles of the blood combined with an excess of saline matter (thus constituting mucus?), we have no difficulty in understanding how the same membrane may, from incidental circumstances, pour out the albuminous particles of blood combined with but a small proportion of saline matter, constituting that form of secretion to which the term "lymph" is applied—a secretion capable of taking on organisation, in which particular it physiologically and essentially differs from mucus. If this hypothesis be admitted as fairly deducible from the preceding observations, we must consider (for example) the secretion of the larynx and trachea, when in a state of health, as chemically differing from that poured out under the irritation of croupy inflammation, only in the different proportions of saline ingredients present in each; and, consequently, we are not compelled to assume, in explanation of the differ-

[1] Elements of Physiology; being an account of the laws and principles of the Animal Economy, especially in reference to the Constitution of Man. By Thomas Johnstone Aitkin, M. D., F. R. C. S. E., Lecturer on Physiology and on Materia Medica, Member of the Medico-Chirurgical Society, Extraordinary Member of the Royal Medical Society, formerly President of the Royal Physical Society, &c. &c. (With a motto.) Small 8vo, pp. 514. London, 1838.

[2] Guy's Hospital Reports, No. VI., for April, 1838, p. 35.

ence of secretion, that in croup a mucous surface assumes the functions of a serous surface (*quoad* secretion).

But it may be objected to those deductions which depend upon the supposed synthesis of mucus, that, according to the experiments of Dr. Babington and myself, it must be assumed that pus is *first* formed, and then carried to the secreting surface, as a pabulum for the formation of mucus; thus making the latter a secondary product. This objection, however, can scarcely be considered as tenable; for pus has only been used, in our experiments, for the synthesis of mucus, because it presents us with particles of albumen in a state of far finer division than can be procured by artificial means. It is, moreover, sufficiently obvious, that, in the *animal economy*, pus is not really converted into mucus; for the former contains a large quantity of iron, which metal is nearly or altogether wanting in mucus. Is there (I would with great diffidence ask) any physiological difficulty in supposing that, on the surface of a serous membrane, the blood gives up a mere aqueous solution of albumen with its accompanying saline matter (serum); whereas on a mucous surface it parts with a mixture of its colourless albuminous particles (which have been long known to exist in blood) with serum; whilst at the instant of their separation, or, to use chemical language, whilst in a nascent state, both combine, with an excess of saline matter; thus constituting, according to the observations recorded in this paper, mucus, which becomes poured out on the secreting surface? On a suppurating surface, on the contrary, may we not also suppose that the blood parts with all its ingredients, excepting its colouring matter, and that portion of dissolved albumen[1] which possesses the property of spontaneous coagulation; thus forming pus?—These views, even if their correctness be denied in a physiological point of view, are nevertheless strictly in accordance with the chemical properties and composition of blood, serum, pus, and mucus. These remarks, however, I hazard with extreme diffidence; rather wishing to place before the scientific world an account of this experimental enquiry, than to present any crude and imperfect deductions of my own; trusting, also, that the observations recorded in this paper will attract the notice of those more fitted to the task of investigating their physiological bearings than myself.

The Medical College of Philadelphia.—In the reports of the Supreme Court of Pennsylvania just published,[2] is the case of "the Medical College of Philadelphia," an association of physicians established, as they themselves state, "for the purpose of claiming, on behalf of the profession, that influence over the regulation of medical instruction, and the means of medical improvement which is so essential to the respectability of the profession, and to the best interests of humanity."

The "Medical College"—having failed in their application to the legis-

[1] "Faserstoff aufgelöste" of Müller. To this eminent physiologist we are indebted for the demonstration of this modification of *albumen*. It appears to be chemically identical with that which in a coagulated state constitutes the colourless globules (Chyluskügelchen) of the blood, as well as the centre of the blood-corpuscules (Blutkörperchen). For an account of the chemical properties of these varieties of albumen, I may take the liberty of referring to Müller's own account. Handbuch der Physiologie des Menschen, 3tte Auflage, 1ste Band, pages 103, 113, 116, and to page 135, for an exceedingly interesting account of the chemical relations of an aqueous solution of spontaneously coagulable albumen (*Faserstoff*, Fibrin), as compared with those of a solution of that substance when destitute of that remarkable property (*Eiweiss* Albumen).

[2] Reports of Cases adjudged in the Supreme Court of Pennsylvania, in the Eastern District. By Thomas I. Wharton. Vol. III. Containing the cases decided at December term, 1837, and March term, 1838. Philadelphia, 1838.

lature for a charter, in the session of 1836-37—applied to the supreme court for a certificate entitling them to a charter of incorporation, under the provision of an act of assembly of the 16th of April, 1791: entitled "an act to confer on certain associations of the citizens of this commonwealth, the powers and immunities of corporations or bodies politic in law."

The court, after having heard the arguments of counsel on both sides, decided as follows:—"1. The supreme court will not certify under the act of 1791, to confer on certain associations the powers and immunities of corporations, where the constitution of the association confers powers not specified in that act. 2. Therefore, where the constitution of a 'Medical College,' submitted to the court, contains a clause authorising the college to confer degrees in medicine upon the students and others, the court declines certifying in favour of the application."

"We repeat," says Judge Huston—who delivered the opinion of the court, "the act of 1791 authorises us to certify on the application for a charter by any literary, charitable, or religious association, who wish to be a corporation or body politic, with a right of perpetual succession, of a common seal, of suing and being sued, of making by-laws, and holding property of a yearly value not exceeding $2000. These powers are specified in that act. Our authority extends no farther; and when an association wishes other authority, or other or greater powers, such can only be obtained from the legislature of the state."

University of the city of New York.—It is stated in a recent number of the New York weekly Whig (June 16th), that Dr. Alfred C. Post, of New York, has been appointed to the Chair of Clinical Surgery, and Dr. Nathaniel R. Smith, of Baltimore, to that of Surgery, in the medical department of this institution. It is farther stated, in a subsequent number of the same paper (June 23), that the council of the university had resolved not to commence the medical school until next November but one.

BOOKS RECEIVED.

From Dr. Meigs.—An Elementary Treatise on Midwifery: or Principles of Tokology and Embryology. By Alf. A. L. M. Velpeau, M. D., &c. &c. Translated from the French with notes, by Charles D. Meigs, M. D., Member of the American Philosophical Society, Lecturer on Midwifery and the Diseases of Women and Children, &c. &c. 2d American edition. 8vo, pp. 592. Philadelphia, 1838.

From Dr. Stevenson, of Canonsburg, Pa.—Treatise on the Nature and Cure of Prolapsus Uteri, and other affections of the Pelvic Viscera. By Robert Thomson, M. D. 8vo, pp. 38.

Cours de Médecine Clinique où sont exposés les principes de la Médecine Organique; ou Traité élémentaire de Diagnostic, de Pronostic, d'Indications Thérapeutiques, &c., ouvrage auquel l'Académie des Sciences a décerné une medaille d'or: Par Léon Rostan, Médecin de l'Hospice de la Viellesse (Femmes), ci devant Salpétrière; Professeur de Médecine Clinique, &c. Edition Belge, augmentée de l'examen des doctrines Médicales et des systèmes de Nosologie de MM. Laennec, Louis, Gendrin, Andral, Rochoux, Rostan, Dance, Calmeil, Lallemand, Bouillaud, Ollivier d'Angers: par M. J. V. Broussais. 8vo, pp. 596. Bruxelles, 1836.